U.S. Department of Energy
Energy Efficiency and Renewable Energy

Solar America Initiative Technology Acceptance

Net Metering & Related PV Policy Supports

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Your Input is Important

- Your verbal comments today will be used to inform our strategic planning process and our solicitation drafting process.
- SENTECH, Inc. is capturing your comments to the greatest extent possible, although their job is to note important points and general discussion trends, not capture every comment by every participant.
- If you wish to provide further comments on any Technology Acceptance topic, please feel free to respond in writing to the Solar America Initiative Technology Acceptance Request for Information (RFI). **COMMENT PEROID CLOSES JUNE 30, 2006.**
- A link to the RFI is provided on this website:

  http://www.sentech.org/SolarTATEM2006/

SAI Technology Acceptance Missions

SAI Technology Acceptance Mission

Reduce market barriers and promote market expansion of solar energy technologies through non-R&D activities.

Infrastructure Development

Provide technical, regulatory, institutional, financial and educational solutions to technology acceptance barriers

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Tech Acceptance Pathways for Net Metering & Related Policy Supports

SOLAR AMERICA INITIATIVE

Infrastructure Development

Identify barriers to market penetration

Identify methods to minimize or eliminate barriers

Barriers → **Methods**

Market Expansion

Opportunities → **Methods**

Identify opportunities for market expansion

Identify methods to capitalize on opportunities

Technology Acceptance Strategic Plan

Technology Acceptance Implementation Plan

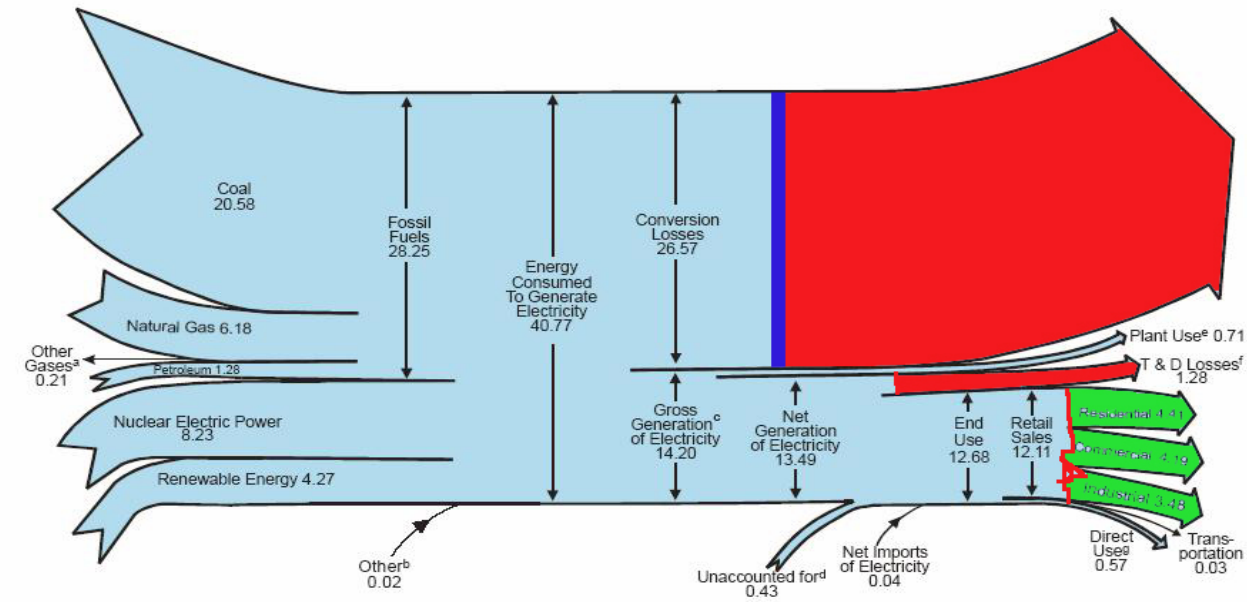
Prioritization → **Implementation**

Prioritize activities & return on investment

Identify tasks, performers, metrics, budgets and timelines

US Can No Longer Afford to Waste 2/3rds of Energy Inputs

Diagram 5. Electricity Flow, 2004
(Quadrillion Btu)



[a] Blast furnace gas, propane gas, and other manufactured and waste gases derived from fossil fuels.
[b] Batteries, chemicals, hydrogen, pitch, purchased steam, sulfur, and miscellaneous technologies.
[c] Estimated as net generation divided by 0.95.
[d] Data collection frame differences and nonsampling error.
[e] Electric energy used in the operation of power plants, estimated as 5 percent of gross generation.
[f] Transmission and distribution losses (electricity losses that occur between the point of generation and delivery to the customer) are estimated as 9 percent of gross generation.
[g] Use of electricity that is 1) self-generated, 2) produced by either the same entity that consumes the power or an affiliate, and 3) used in direct support of a service or industrial process located within the same facility or group of facilities that house the generating equipment. Direct use is exclusive of station use.

Notes: • See Note, "Electrical System Energy Losses, at the end of Section 2. • Totals may not equal sum of components due to independent rounding.
Sources: Tables 8.1, 8.4a, 8.9, and A6 (column 4).

Net Metering

- Net Metering is the short hand term for choosing a simple approach to allowing the customer to install generation on his or her side of the meter,
  - without a major change in his or her contractual relationship with the distribution utility,
  - with limited requirements for new equipment, payments to the utility for engineering or other services,
  - With limitations on other new utility requirements, such as additional insurance

Net Metering (cont)

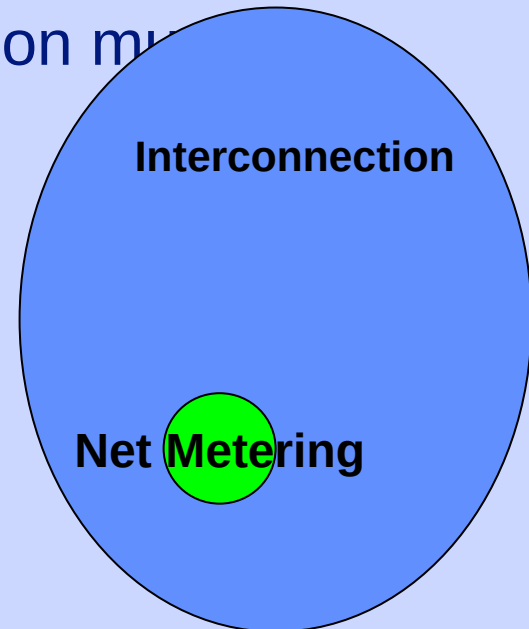
- Net Metering originally developed to simplify the installation of photovoltaics (PV), and often limited to “preferred” technologies, and subject to size limitations.
- Net Metering is always required to be benign with respect to safety and reliability concerns, but these are best addressed in “interconnection” rules and standards

The Confusion Between Net Metering and Interconnection

- "Interconnection" refers to the fact that while traditional utility grids generally received generation only from utility owned and controlled sources, with the advent of PURPA and the advances in increasingly smaller yet cost-effective alternative technologies—new issues faced the operator of the distribution and transmission networks
- The adoption of IEEE Standard 1547-2003 provided assurance that the issues were manageable.

The Confusion Between Net Metering and Interconnection

- All generators that will run in parallel with the distribution utility must be “interconnected” to do so. Therefore all net metered installations must be interconnected.
- However, not all interconnected generation mu
net metered.



Common Barriers to Net Metering

- High Insurance Requirements
- Cumbersome utility procedures
- Requirements for 2 or more meters
- Attempt by utility to characterize as a retail sale and a wholesale buy
- Failure to recognized full benefits of customers financing and operating their own generation
- Unfounded or overestimated cross subsidies
- Utility fears of lost revenue

Features of Net Metering

- True “net” for what period?
- Limits on technology, size, customer, and overall total?
- Related tariffs?
- Is price of “excess” power important?
- Specified agreements, limitation on insurance and other requirements
- Issues related to more uniform net metering provisions -- EPACT section 1251—state proceedings?

EPACT 2005

SEC. 1251. NET METERING AND ADDITIONAL STANDARDS.

NET METERING.—Each electric utility shall make available upon request net metering service to any electric consumer that the electric utility serves. For purposes of this paragraph, the term 'net metering service' means service to an electric consumer under which electric energy generated by that electric consumer from an eligible on-site generating facility and delivered to the local distribution facilities may be used to offset electric energy provided by the electric utility to the electric consumer during the applicable billing period.

Note implication that net metering might be limited to total customer load for 1251 purposes.

PV Rating Systems Questions/Next Steps

1. What is the best approach to addressing net metering to insure goals of Technology Acceptance?
2. What is the need/justification for any regional differences in net metering?
3. What existing net metering approaches, lessons learned could be instructive in this effort?
4. What are the remaining barriers in PV net metering and interconnection process
    - Advanced states like California, New Jersey
    - States earlier in the process

Net Metering & Related Policy Support Further Questions

5. What are the issues in increasing or removing the cap on net metered installations
6. How will increased use of dynamic tariffs and sophisticated smart meters affect net metering use?
7. Other important issues that relate to the goals of technology acceptance program in this area?